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(54) Title: METHOD FOR DETERMINING OPTIMAL DAMPING TREATMENTS LAYOUTS AND PANEL SHAPE LAYOUTS

(57) Abstract: The present invention is directed to an optimising method for vibration damping treatments and panel shape layouts of vehicle body structure parts in view of acoustic performance. This new optimisation tool is based on a genetic algorithm and is able to efficiently predict the optimum damping package on vehicle body panels in terms of materials, thickness and local damping distribution without the use of any experimental methodology for determining the vibration response. The present invention allows the efficient exploration of very large solution domains and has the possibility of taking into account high numbers of variables, even in full vehicle computations (metal sheet and damping treatment type, shape, thickness, temperature and distribution). The optimisation method according to the present invention has an open architecture, which makes it easy to modify and link to any simulation methodology.